III. THE REQUISITE MARKET ANALYSIS AND CRITERIA OF ESSENTIALITY

12. The foregoing principles unequivocally require the Commission, in determining which network elements the ILECs must make available to competitors, to apply the criterion of essentiality network–element-by-network-element and market-by-market.

Market definition

13. In general, analysis of market power first requires definition of markets along product and geographic dimensions. In the present case, the relevant products are the particular network elements required to provide local exchange service and exchange access.

14. Both logic and experience—in particular the expansion of local competition for business customers in concentrated metropolitan areas (the profundity of which change since passage of the Act the Commission has itself acknowledged[4]) and much slower development of competition for residential subscribers in most of the country—compel the conclusion that the market to be analyzed cannot be nationwide, with the UNEs so identified comprising a single uniform list. The assessment of competition and of the availability of necessary inputs from sources other than the ILEC clearly requires an assessment element-by-element and market-by-market (or group of markets).

15. The exercise of market definition is essentially the same as the one the Commission performed when it declared AT&T non-dominant in the provision of long-distance service.[5] As the afore-mentioned experience with the rapid emergence and growth of CLECs has already

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[4] *Second Further Notice of Proposed Rulemaking*, par. 3.

[5] *Motion of AT&T Corp. to be Reclassified as a Non-Dominant Carrier*, October 12, 1995.

clearly demonstrated, the definition and grouping of the relevant markets will have both a geographic and a class-of-customer dimension.

16. Moreover, those definitions will, manifestly, differ among the several network elements. Subscriber loops tend to have the same geographic and customer dimensions as the end-services whose provision they make possible; other elements, such as switches and transport, are likely to have very different dimensions: they are supplied without distinction by customer type and the geographic scope of their markets.

17. These elementary considerations lead inevitably to the conclusion that the Commission was both premature and mistaken, in terms of elementary principles, when it tentatively concluded that there should be a national list of unbundled elements subject to mandatory unbundling.[6] This error is all the more surprising in consideration of the fact that in calculating its measure of the long-run incremental cost of providing access service, in its universal service proceedings, the Commission has clearly recognized the necessity of distinguishing among zones varying in their cost characteristics.[7] It would clearly be absurd to offer the same subsidy, putatively necessary to compensate for the difference between basic residential rates and the costs of efficient facilities-based entry, in all these markets. Manifestly, the same need for differentiation applies to the designation of UNEs. The experience to date clearly demonstrates, to take the most elementary example, that even subscriber loops—the archetypical essential inputs, according to general conception—are not essential facilities by any reasonable test for the provision of local telephone service (or, at

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[6] *Id.*, par. 14.

[7] *See In Re Federal State Joint Board on Universal Service*, 12 FCC Rcd. 8776, at par. 250 (May 8, 1997).

least, high-capacity services) to large business customers in large metropolitan areas. And as telephone service via cable becomes available and wireless subscriber access becomes more fully competitive, the ILECs' loops may likewise cease to be "essential."

18. As the foregoing discussion also clearly illustrates, however, the need for market analyses more highly differentiated than implicitly underlay the Commission's tentative identification of a single national list need not open the door to the necessity, at the other extreme, of a large number of separate analyses of every individual market. Just as the Commission has recognized in its universal service proceedings, reasonable groupings, both geographic and by category of customer and service, are obviously available.

Stipulating the requisite degree of "necessity" or "essentiality"

19. The Commission's Notice (pars. 25 and 26) seeks comment on whether it is possible to specify some particular degree of the cost disadvantage that will be imposed on a would-be competitor by its inability to employ the UNEs of an incumbent, as a basis for determining whether an element should or should not be placed on the list that the latter company would be required to make available. The question is a plausible one; but a brief consideration of what would be involved in any such endeavor will, I submit, disclose the superiority, by far—on ground both of economic principle and practicality—of the Commission's confining itself to the criterion of "essentiality," as it has been developed in the antitrust jurisprudence. This implies a simple yes or no determination—even though intuition would suggest that competitive advantage or disadvantage must logically be a matter of *degree*—along with a reliance on the objective evidence of market behavior to make that finding: have competitors in fact been able to enter using either their own facilities or inputs purchased from others than

the ILECs? The following considerations, I suggest, counsel a negative answer to the Commission's query:

- First, the complexity of the tasks suggested by it—determining (or professing to determine) market-by-market and element-by-element what percentage cost disadvantage would be sufficient to prevent competition from emerging.

- Second, the object of the quest is by its very nature a will-of-the-wisp. The cost disadvantage imposed on a potential competitor by lack of access to a particular ILEC network element would not necessarily be the same for each such competitor. There could therefore logically be no single critical degree of handicap applicable to all of them. A cost disadvantage that would preclude entry by one competitor would not do so for another, depending upon the way in which each of these proposed ventures would fit within the operations of the particular aspirant.

- The point is that a narrow focusing on a particular cost advantage or disadvantage associated with the availability or unavailability of a specific network element could not ascertain a specific cut-off point as permitting or precluding competition, because it fails to take into account the likely offsetting advantages that CLECs are likely to enjoy—in varying degrees depending upon their own situations—economies of scale and scope that they would be in a position to exploit by offering local exchange services in combination with their own particular mixes of offerings, as well as the ability to take advantage of available new technologies. An obviously important example is AT&T's declaration of intention to offer local exchange service via the cable facilities of TCI and MediaOne, in combination with long-

distance, Internet access and video—a project on which it is betting some $100 billion. Such economies clearly can far more than offset any particular cost disadvantages with respect to particular network elements acquired or acquirable only from ILECs: there is no single percentage disadvantage that can be stipulated as critical to *competition* in the market.

- The quest for a critical measure of cost disadvantage is further confounded by the method on which the Commission has decided unbundled network elements are to be priced. The critical degree of competitive disadvantage—element-by-element, market-by-market—that would be the object of the proposed search would be the difference in *cost*—the cost of the incumbent on the one side, the cost of alternative sources of supply available to the CLEC, on the other. But the price the Commission has decided to require an ILEC to charge is not to be based on or equated to its costs, either embedded or incremental, but on the putatively lower cost of a hypothetical, most efficient supplier. In other words, the possible cost disadvantage of the would-be competitor is converted to new cost advantage, with the additional quixotic consequence, in principle, of making facilities-based entry foolish: why incur the risks of constructing one's own facilities if one can instead acquire them at a price that regulators, in their omniscience, have determined would be the cost of an ideally efficient provider?

- As the foregoing recital clearly demonstrates, the venture suggested by the Commission's query is an intensely regulatory one and administratively infeasible: the regulator is supposed to ascertain—for each market and potentially, in principle,

for each possible UNE and perhaps even each potential CLEC—what degree of cost disadvantage would actually prevail if provision of the UNE by the ILEC were not mandated and, at least in principle, what charge would just eliminate that disadvantage (the latter question clearly not the one that the Commission set out to answer in settling on its TELRIC method of pricing the elements).

The test of essentiality

20. The essential facilities doctrine, as we have proposed it be interpreted and applied in the present context, would rely instead on the evidence of the market. Are local exchange providers offering or capable of offering service with their own facilities—whether facilities similar to those of the ILECs or other? Are entrants purchasing or able to purchase inputs from others than the ILEC in a wholesale market? If so, provision of them by the ILECs is not, by the objective evidence of the market, essential to *competition* in that market.

21. The fundamental question this test poses is whether competition *in any market or class of markets* can proceed absent the availability of particular unbundled elements from the ILECs, that is, (1) do firms need particular elements that they can obtain only from an ILEC *and* (2) are there no other ways to produce the services in question. Therefore, a particular element is essential to the development of *competition* only if (1) it cannot be obtained from another source, including self-supply and (2) there are no other firms offering the services without using the network elements of the ILEC in question. For example, by this reasoning, switches and high-capacity transport facilities in metropolitan areas served by facilities-based CLECs are not essential facilities, because the CLECs have demonstrated that there are alternative sources of supply. The point is that the actual deployment of network facilities by

CLECs, taking advantage of whatever economies of scale or scope may be available to them, is of much greater competitive significance than necessarily imprecise estimations of cost advantages or disadvantages to which they might be subject if they could not acquire particular network elements from an ILEC. As Commissioner Powell has observed:

> [T]o the extent other facilities-based competitors do *not* use elements of the incumbent's network, the presence of those competitors in a particular market should be probative in evaluating whether other firms would be "impaired" in their ability to provide service in that market absent mandated access to the incumbent's elements.[8]

The relevance of the Commission's pricing rules

22. While recognizing that the Commission's proposed method of pricing network elements is not at issue in this proceeding, a complicating fact, as a matter of economic reality, is that the issues of essentiality and the requirement to share cannot be separated from the regulated price that is established for these elements. This issue is important for two reasons. First, whether or not it is economical for other suppliers to provide network elements to other CLECs depends on the prices the ILEC charges for comparable elements. At the extremes, regulators can make all ILEC elements "non-essential" by setting prices too high, or make them all "essential" by setting prices so low that it becomes uneconomic for entrants to compete on a facilities basis.[9] Second, widespread availability of network elements in combination with

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[8] Separate Statement of Commissioner Powell at 4, *Second Further Notice of Proposed Rulemaking* (emphasis in original).

[9] This reasoning might suggest, additionally, that actual facilities-based entry should not be dispositive, because the economics of that entry (from the perspective of the entrants) depends on regulatorily-established prices of retail services, and it is a historical fact that the charges for service to businesses in concentrated metropolitan areas were indeed so high as inefficiently to have encouraged such entry. While this observation may have some theoretical merit, history suggests that because facilities-based entry requires the commitment of sunk costs, actual entry has considerable economic significance. For both long-distance and high capacity dedicated services, some entry was undoubtedly encouraged by the high prices for incumbent services in those markets. Competition persisted, however, and grew even as those prices came down. Conversely, entry that occurs in the face of charges by incumbents below their own actual costs is a conservative indicator of competitive

Commission-dictated rates for them below the actual incremental costs of the incumbents can inefficiently discourage the development of facilities-based local exchange competition, especially in the case of new technologies and new services. In considering the Commission's sharing rules, therefore, the economic reality is that

- while the obligation to share whatever network elements competitors demand in itself violates the principle that in a deregulated world innovation requires the prospect of exclusive enjoyment of the fruits of successful ventures, the *price* at which sharing is mandated, if it is to be mandated at all, becomes an essential part of the equation;

- in these circumstances, the Commission's prescription of a price purportedly equal to the minimum costs that would be incurred by an efficient supplier, using the most modern technology and writing, as it were, on a clean slate, completes the process of *destroying the incentive to innovate*. The notion that the ILECs are likely to find it profitable to engage in such unprecedentedly risky investments as they now contemplate—the most notable example being the digitalization of subscriber lines—under a regulatory regime that requires them immediately to share those facilities with any and all competitors who ask for them—competitors who are subject to no such obligation—at prices based on the Commission's hypothetical,

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significance, because prices reflecting those actual costs would have encouraged even more—as efficient use of society's resources would have dictated.

most-efficient-firm cost standard seems flatly in conflict with the long-run prerequisites of innovation.[10]

- The discouraging effect of the Commission's prescription for pricing UNEs is not confined to risk-taking innovations by the ILECs; it is equally destructive of the other part of the process of competitive innovation—the efforts of rivals of the successful innovator, by their own efforts, to invent around and surpass the initiator and achieve the market's reward for those efforts. In contrast, the Commission's sharing and pricing rules encourage free riding. If rivals can share use of whatever ILEC facilities they ask for—with their mere asking constituting sufficient demonstration that access is "necessary" to them—at prices explicitly intended to recover only the minimum cost of supply employing the most modern technology, it cannot but have a fatally discouraging effect on their own imitative and innovative efforts: when every applicant can be a free rider, at such minimum prices, who is going to build the vehicle? The Commission appears completely to have ignored the discouraging effect of their rules on facilities-based competition with the ILECs.

- It might appear that these last considerations are irrelevant to the present proceeding, in which the pricing of unbundled UNEs is not at issue. But the Commission cannot ignore the interrelationship in the real world, as a matter of simple economics, between the issues before it here and the pricing formula it has

[10] See the reference to the study finding an average rate of return of 56 percent from some 17 successful innovations made in the 1970s and comparing that with the 16 percent average return on investment for all American business, in note 1, above. A more directly pertinent comparison in the present context would be with the traditional regulatorily-prescribed rates of depreciation and return typically incorporated in the models on the

settled upon elsewhere. These combined considerations emphasize the need for the Commission to exercise extreme caution in compiling its list of elements that must be unbundled. Specifically, the newer the elements that would be priced at the Commission's version of TELRIC, the more their provision calls for large, risky investments, the more anti-competitive it would be to subject them to mandatory sharing.

Other Commission queries: The absence of obligation of CLECs to unbundle and the availability of resale

23. The heavy weight that I believe should be given to the availability of network elements from facilities-based competitors provides the proper context for considering two other questions posed by the Commission: (1) the significance of the fact that only ILECs have a legal obligation to unbundle and (2) the importance of resale in determining what elements must be unbundled.[11]

24. In answering these questions, it is important once again to keep the Act's fundamental purpose in mind—the development of competition, not the appearance of particular types of competitors. If the combination of facilities-based entry—even though the CLECs have no obligation to make elements of their networks available to *other* CLECs—and the Act's requirement that ILECs make their retail services available for resale at regulatorily-prescribed discounts are sufficient to produce competition, it is of very little economic consequence whether unbundled elements are used to a small or large extent.

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basis of which the FCC and State Commissions have been purporting to measure the TELRICs that the FCC prescribed for the pricing of UNEs.

[11] *Second Further Notice of Proposed Rulemaking*, pars. 42-43.

25. As for the first question, it is likely that an efficient amount of unbundling on the part of CLECs will develop without Commission compulsion. Despite the fact that they have no legal obligation to unbundle, the economies of scale in the provision of many of their inputs gives those companies an incentive to offer them to other CLECs. PNR & Associates report that several firms, including Intermedia, Focal Communications, Frontier, and GST are either providing network elements to, or obtaining them from, other CLECs.[12] Similarly, there are alliances involving CLECs (e.g., e-spire and Hyperion) and electric utilities (e.g., ICG) that enable the former to obtain network facilities from sources other than the ILECs. Metromedia Fiber Network offers a particularly interesting example.[13] It provides network facilities on a wholesale basis to other CLECs in both Bell Atlantic and GTE territories; it is supplying fiber facilities to Time Warner in New York and New Jersey and to Allegiance in the Dallas area, and it is also providing facilities to *ILECs*, including Bell Atlantic. This kind of market development is observable in other countries and markets as well. For example, a facilities-based CLEC in Western Canada has reported its willingness to make parts of its network available to other carriers, in direct wholesale competition with Canada's ILECs.[14] And some cable operators have sold fiber to CLECs.[15]

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[12] PNR & Associates, "Competitive Network Alternatives in Eight Typical GTE Markets," at 23 (May 24, 1999) (attached as Appendix D to GTE's Comments).

[13] Salomon, Smith, Barney, *MFN MFX 1Q99 Better Than Expected*, May 12, 1999.

[14] The Canadian trade press reports overtures by Group Telecom, Inc., one of the three licensed facilities-based carriers, and Sprint Canada. In particular, Group Telecom is interested in offering Sprint loop and transport facilities in the cities in which it is establishing facilities (Vancouver, Calgary, and Toronto) in competition with incumbent LEC unbundled elements. *See Group Telecom Says AT&T Canada – MetroNet Merger Opens Niche for Local Competition*, NETWORK LETTER, March 22, 1999, pages 4-5.

[15] *See* Peter E. Huber & Evan T. Leo, UNE Fact Report (submitted by USTA on behalf of Ameritech, Bell Atlantic, BellSouth, GTE, SBC, U S WEST) ("UNE Fact Report").

26. As for the second question, current developments suggest there is no need for the Commission to try to answer it explicitly: competition will produce the proper combination of unbundling and resale, without the need for extensive regulation. CLECs appear to be following a strategy similar to the one adopted by AT&T's challengers in the interLATA business—combining resale and facilities-based operation, and using only a minimal number of UNEs (primarily loops) of the dominant incumbent in the interim.[16] For example, Winstar employs a wireless technology to serve business customers. It reports that it serves some customers with resale and then migrates them to its own facilities as soon as possible.[17] Birch Telecommunications, which serves metropolitan areas in Texas and Missouri, follows a similar strategy in building its base of business customers.[18]

27. In addition to a rationale and process for identifying network elements to be unbundled, the Commission has sought comments also on how elements may be removed from the list (par. 37-38). In view of the rapid changes in technology and expansion of telecommunications markets, and the necessity for achieving minimum efficient scale if a CLEC is to find it possible to invest in its own facilities, access to ILEC facilities that may be

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[16] PNR & Associates provide additional examples of CLECs making limited or no use of UNES as a transition strategy. These include Allegiance, AT&T, e spire, ICG, KMC, MCI, Nextlink and USX.

The long-distance business has been particularly susceptible to competition by pure resellers because of (a) the historically gross overpricing of this service—far above incremental costs—and (b) AT&T's need, therefore, to offer very large discounts to preclude private carriage (after the above *890* decision). Once the FCC required it to permit reselling of its services, those discounts provided wide margins within which resellers could operate—margins considerably wider than have typically been prescribed by regulatory agencies under the terms of the Telecommunications Act. The experience I cite here demonstrates, however, that whatever the adequacy of those prescribed discounts for pure reselling, they have in fact sufficed to permit use of resale as part of a transition strategy for predominantly facilities-based CLECs, without substantial use of ILEC UNEs.

[17] Winstar Reports Fourth Quarter and Year-End Results, March 4, 1999.

[18] David Scott, *The Future of Local Exchange Competition*, Presented at the 25th Annual Rate Symposium, St. Louis, Missouri, April 27, 1999.

necessary today may very well cease to be necessary tomorrow. This clearly suggests that the even quite general instructions of the Supreme Court require a periodic reconsideration of whatever list of elements the Commission decides are "necessary."

IV. ASSESSMENT OF THE ESSENTIALITY OF ILEC NETWORK ELEMENTS

A. Summary

28. The facts provided by the UNE Fact Report, PNR and NECI[19] demonstrate that only some ILEC network elements are essential in only some markets. Taken in conjunction with the economic principles I have expounded in the preceding sections, they counsel the Commission to impose mandatory unbundling only in those situations.

29. In the following subsections, I summarize these facts and the conclusions they suggest with respect to (1) switching, (2) transport, (3) subscriber loops, (4) directory assistance and operator services and (5) advanced network functions and services. I demonstrate briefly how, taken in conjunction with the preceding exposition of the applicable economic principles, they support the following conclusions:

- Switching is not an essential input, because CLECs are providing their rapidly growing volume of services that compete with ILEC services by relying predominantly on their own switches.
- In the case of transport, CLECs have placed facilities in areas where demand is concentrated—that is, contiguously with the largest ILEC wire centers. In these areas, they rely predominantly on their own facilities—or facilities provided by

other CLECs—as transport inputs. Transport is therefore manifestly not an essential input in these areas.

- The evidence with respect to subscriber loops and its policy implications are similar: CLECs have concentrated on providing them to medium to large businesses (defined, roughly, as users with volume sufficient to make DS-1 access economic) in concentrated metropolitan areas and are actually providing such facilities to a large share of these customers. Subscriber loops are, therefore, not essential inputs in these markets. While CLEC inroads into other markets with their own subscriber loops is not as far along, there are strong indications that alternatives will rapidly become available. For example, AT&T has invested or committed itself to invest over $90 billion to acquire cable television facilities that would allow it to provide telephone, video and advanced services directly to over 50 percent of US households.[20] Similarly, AT&T and other PCS providers are now marketing their PCS service as a substitute for first and second wireline telephones. While therefore the Commission may properly treat loops as essential for competition in most residential markets today, it should be alert to the need to remove them from the list when and as, in particular geographic markets, CLECs (including, prominently, cable, wireless and electric companies) demonstrate their ability to compete by using their own facilities.

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[19] Network Engineering Consultants, Inc. (NECI), "An Analysis of Alternative Network Elements Available to CLECs" (May 26, 1999) (filed as Appendix C to GTE's Comments).

[20] Cable television firms not currently affiliated with AT&T already are providing these capabilities to some of their subscribers.

- In the case of directory assistance and operator services, numerous alternatives to ILEC products are already being provided. In fact, even some ILEC affiliates purchase these services rather than provide their own. Consequently, there is no economic justification for mandatory unbundling.

- ILEC competitors are offering advanced network services without reliance on ILEC inputs. If anything, it is the CLECs, not the ILECs that have the stronger position in these markets. Because the provision of such *new* services is clearly going to be competitive from the outset, and the incumbent companies are evidently going to have to make very large investments to catch or keep up, not only does the case for mandatory unbundling and sharing at regulatorily-prescribed rates not apply, such treatment of these network elements is likely to conflict with the requirements of dynamic competition.

B. Switching functions

30. The description in the UNE Fact Report of how CLECs use alternative sources of switching clearly demonstrates that ILEC unbundled switching does not meet the "necessary" and "impair" standards from an economic perspective. There is therefore no economic basis for mandatory unbundling of these functions.

31. The UNE Fact Report describes how the local exchange switch and the associated rate exchange areas (or rate centers) constitute a basic building block of the ILEC network and examines the alternatives to ILEC switching available to CLECs at the rate center level. This examination produced the following findings.

- One third of the rate centers in RBOC/GTE territories are served by at least one CLEC switch.

- In contrast to ILEC networks, CLEC switches tend to serve multiple rate centers: the average CLEC switch serves 14. The "footprint" of these switches is even larger. For example, as the UNE Fact Report points out that (1) AT&T says its switches can serve customers within a 125 mile radius and (2) switch manufacturers document that a CLEC switch can serve customers up to 600 miles away. The UNE Fact Report reports also that a CLEC switch can serve customers throughout a LATA. This fact has two economically significant implications. First, CLECs can take advantage of economies of scale in switching by serving larger areas than are typically served by ILECs. Second, according to the calculations in the UNE Fact Report, CLEC switches now have 94 percent of all the RBOC/GTE rate centers within their reach.

- A rapidly increasing number of switches are being deployed by a large number of CLECs. Over 150 CLECs have deployed at least one. The total number has increased 10-fold in the last three years—from 65 before the Telecommunications Act was passed to over 700 switches by March 1999. The time necessary to install switches has decreased, with CLECs providing estimates in the range of 40 days to 28 weeks.

- In addition to standard local exchange switches, CLECs can obtain switching functions from other sources, including long-distance,[21] wireless, packet, and PBX switches. Indeed, the Commission recently described how switching can be provided by network equipment that serves other functions as well.[22]

C. Transport

32. The UNE Fact Report provides a conservative answer to the question: when must CLECs rely on interoffice transport[23] provided by ILECs in order to serve their customers. The Report points out that:

- CLECs tend to locate their facilities in areas of high concentration of telecommunications demand, focusing on large wire centers— locations serving 20,000 - 40,000 lines.

- They have collocated their networks (or have collocation agreements pending) in a substantial fraction of such wire centers, accounting for roughly one-half of all ILEC lines. When CLECs collocate in these wire centers, they rely on their own networks or on facilities provided on a wholesale basis by other CLECs; they do not purchase very much from ILECs.

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[21] For example, AT&T serves its larger business customers with Digital Link service, which connects these customers to its long-distance switches through high capacity connections.

[22] *See In re Deployment of Wireline Services Offering Advanced Telecommunications Capability*, First Report and Order and Further Notice of Proposed Rulemaking, CC Docket 98-147, FCC NO. 99-48, at pars. 27-31 (March 31, 1999) (discussing new telecommunications equipment, such as DSLAMs, routers, ATM multiplexers and remote switching modules, that combines switching and other functions).

[23] Local exchange carriers use transport to establish connections (1) among their own switching locations, (2) to the switching locations of other local exchange carriers, and (3) to the networks of long-distance carriers.

- Dr. Foreman's analysis of collocation in GTE's territories[24] indicates that the size at which collocation tends to occur is smaller for GTE; his analysis concludes that collocation is almost 20 times more likely in offices above 15,000 lines than in smaller offices. He observes also that CLECs generally do not purchase unbundled transport in offices in which they have collocated. Instead they rely on their own facilities, transport provided by other CLECs, and/or ILEC-provided special access.

33. These facts lead to the clear conclusion that ILEC interoffice transport is *not* an essential input in areas served by the larger ILEC wire centers. Consequently, mandatory unbundling of ILEC transport in these markets would not be justified.

- This does not necessarily rule out the essentiality of ILEC transport at smaller wire centers. I suggest, conservatively, therefore, that transport network elements outside of the ILEC's high-density wire center areas—and only outside those areas—be subjected to mandatory unbundling. At the same time, in view of the apparent tendency of CLECs to use resale to supplement what they can provide with their own facilities, I recognize that this invitation from the FCC might turn out to be to a party that no one decided to attend.

D. Subscriber loops

34. As the CLEC business strategies that I have already described clearly demonstrate, the treatment of subscriber loops must logically vary from one market—defined both

[24] See Declaration of Dr. R. Dean Foreman (filed as Appendix C to GTE's Comments).

geographically and by category of subscriber—to another. Making these distinctions requires recourse to market definitions that are familiar to the Commission.

35. On the demand side, medium and large business customers are clearly in a market distinct from smaller customers: they demand different kinds of service, only very imperfectly or not at all substitutable one for the other. Looking to the supply side: CLECs have until now targeted metropolitan—and, at the other extreme, avoided rural—areas[25]; and this behavior would be unlikely to be altered by changes in the relative prices of the dimensions ordinarily used to define markets. Manifestly, while the loops may well be categorized as essential in the latter customer and geographic markets, they are not in the former. The UNE Fact Report and the PNR Report have provided detailed assessments of the activities of CLECs nationally and

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[25] Timothy J. Tardiff and I recently developed substantially the same market definition in our analyses of high capacity competition in Phoenix and Seattle. Kahn and Tardiff, "Economic Evaluation of High Capacity Competition in Phoenix," prepared for filing with the Federal Communications Commission on behalf of US WEST Communications, Petition of US WEST Communications for Forbearance from Regulation as a Dominant Carrier in the Phoenix, Arizona MSA, August 14, 1998 and "Economic Evaluation of High Capacity Competition in Seattle," prepared for filing with the Federal Communications Commission on behalf of US WEST Communications, Petition of US WEST Communications for Forbearance from Regulation as a Dominant Carrier in the Seattle, Washington MSA, December 22, 1998: The fact that the relevant product market is narrower than...all-local-exchange-services...is richly illustrated by the fact that competition has...concentrated on the business market—and in particular, service to large businesses in concentrated metropolitan....As AT&T clearly proclaimed upon completion of its recent acquisition of Teleport Communications, which greatly strengthened its potential market position in the offer of exchange access:

> 'Completion of this merger accelerates our entry into the $21 billion business local service market because we're reducing our dependence on the Bell Companies for direct connections to businesses,' said AT&T Chairman C. Michael Armstrong....'We're giving customers simplicity, convenience and choice. It's one-stop shopping for local and long-distance service, just for starters,' he said.

AT&T Completes TCG Merger; TCG Now Core of AT&T Local Services Network Unit, AT&T News Release, July 23, 1998.

The Release went on to describe how the TCG acquisition facilitates its offer of Digital Link service, an arrangement that employs high capacity links to business customers. Manifestly AT&T views business services as separate from residential. Similarly, MCI WorldCom recently announced a marketing initiative that targets offerings to *business* customers combining local, long-distance, voice, and data services. *MCI WorldCom Sets Major Marketing Plan for Business Clients*, WALL ST. J., Sept. 29, 1998, at C13.

descriptions of the presence of their facilities in selected metropolitan areas, both of which facilitate economic analyses of these several markets.[26]

36. With regard to the subscriber loops required to serve medium to large businesses in metropolitan areas, the facts are:

- At least five facilities-based CLECs are present in each of the top 30 metropolitan statistical areas (MSAs),[27] and at least one in all but one of the top 150 MSAs.
- CLECs are already serving large numbers of business customers in these areas and their sales have been growing at a rapid rate. CLEC facilities already serve 15 percent of all commercial buildings in the United States and considerably more volume is within their reach.[28]
- CLECs are already very successful in capturing market share with their own facilities in these targeted areas. The UNE Fact Report presents alternative estimates of CLEC-provided local loops that imply market shares of between 8 and 18 percent in targeted geographic areas.[29]

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[26] The UNE Fact Report provides geographic detail for Los Angeles, San Diego, San Jose, New York, Syracuse, Binghamton, New Brunswick, NJ, Philadelphia and Northern New Jersey and PNR and associates described CLEC facilities in GTE territories in Los Angeles, Dallas, Tampa, Lexington, KY, Missouri and South Carolina.

[27] PNR & Associates report that there are 17 facilities-based CLECs in Los Angeles.

[28] For example, PNR reports that a majority of buildings with high concentrations of businesses are within 1,000 feet of CLEC facilities in Dallas, Tampa and Lexington, Kentucky. Further, our studies of the Phoenix and Seattle high capacity markets suggest that it is economic for CLECs to reach out for business 1,000 feet or more beyond their existing facilities.

[29] The UNE Fact Report goes on to observe that these shares compare favorably with the 5 percent share competitors of AT&T had attained three and one-half years after the *Execunet* decision. Moreover, market shares based on the number of lines tend to understate CLEC inroads, because the competitors tend to serve lines that generate above-average revenues.

37. These facts support the conclusion that in metropolitan areas, unbundled ILEC subscriber loops are not necessary inputs for CLECs and should therefore not be subject to mandatory unbundling.

38. While I cannot conclude at this time that subscriber loops are similarly not essential in producing local exchange service in other markets, facilities-based competition is progressing there as well. For example, the UNE Fact Report shows that a growing number of cable television companies have begun to upgrade their networks to offer telephone service (as part of a package with video, voice, and high-speed Internet access) and residential customers are now receiving telephone service from them. The most dramatic of these developments has of course been AT&T's investment of over $90 billion to acquire the largest and fourth largest cable television companies, TCI and MediaOne, accompanied by AT&T's announcement of its intention to serve residential customers by completely bypassing ILEC facilities.

> AT&T is on its way to bypassing the local telephone loop and reaching customers directly over cable-television lines thanks to our merger agreement with TCI and our joint venture with Time-Warner. These agreements will eventually give us access to more than 40% of all American homes.[30]

To be sure, the promise or statement of intention is not the same thing as fulfilled reality; on the other hand, the $90 billion is very real indeed.

39. Other technologies for providing facilities-based subscriber access to residential customers are emerging as well. For example, as the UNE Fact Report describes, AT&T, among the leading providers of PCS service, is now marketing its wireless service as a complete substitute for first and second wire phone lines.

40. I do not suggest these developments demonstrate that loops should be deemed non-essential for the competitive provision of local exchange service to residential customers at this time. What they do demonstrate is that even for residential markets, ILEC subscriber loops may well *prove* to be non-essential. In the event that Mr. Armstrong's bold expectations, which appear to have been endorsed by the market performance of AT&T stock, materialize, that will indeed be the case; and at that point, those ILEC facilities should no longer be subject to mandatory unbundling.

E. Directory Assistance and Operator Services

41. There are a number of companies that currently provide directory assistance and other operator services to major wireline and wireless telecommunications companies.[31] Indeed, in some cases, I understand, ILEC affiliates are themselves already purchasing these services from suppliers other than the ILEC itself.

42. For example, Volt reports that its Excell service provides directory and operator services to established and emerging network providers, including three of the six largest long distance companies.[32] InfoNXX provides operator and directory services to, among others, the seven million wireless customers of Bell Atlantic, U S West, and AirTouch.[33] Similarly, Metro

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[30] C. Michael Armstrong, *Local Phone Companies Rip Off Consumers*, WALL ST. J., Mar. 1, 1999, at A22 (editorial by AT&T Chairman).

[31] The NECI Report lists 10 providers of directory assistance and operators services and provides detailed descriptions on their offerings. The UNE Fact Report provides an independent (and overlapping) list that includes ten CLEC and five third-party providers. It also lists several Internet Web sites that provide directory services.

[32] *Making Excellence in Directory Assistance a Custom*, at http://www.volt.com, released August 12, 1996, obtained August 1, 1997.

[33] *National Alliance Jointly Purchases Specialized Directory Assistance Services from InfoNXX*, at http://ba.com, released June 25, 1996, obtained August 4, 1997.

One Telecommunications offers directory and operator services to a variety of providers, including local, long distance, wireless, and competitive access providers.[34] Finally, Teltrust provides directory and operator services to Cox Communications.[35]

F. Network Unbundling for Advanced Services[36]

43. In par. 35, the FCC sought comment on whether network elements that provide advanced services should be subject to mandatory unbundling.

44. I have already propounded the proposition that mandatory sharing of essential facilities should as a general rule be limited to situations in which the monopoly enjoyed by the ILEC is essentially a carryover from its past as a franchised utility company. When, in contrast, the facilities or inputs in question are new and are expected to be provided, not under a system of cost-plus rate base/rate of return regulation, but at the risk of investors, the potential losses in dynamic efficiency in deploying new technologies and bringing new services to the market will typically outweigh any benefits in cost savings from mandatory sharing.[37] There would be close to unanimous agreement among economists with the principle that the most creative form of competition, and the one most productive of benefits to consumers, is the

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[34] Metro One web page, www.metro1.com, obtained August 4, 1997.

[35] *Teltrust to Provide Telecommunications Services to Cox Communications*, at http://www.teleservices.com, released July 9, 1997, obtained April 7, 1998.

[36] The following several paragraphs are adapted from Kahn, Tardiff and Dennis Weisman, *The Telecommunications Act at Three Years: An Economic Evaluation of Its Implementation by the Federal Communications Commission*, INFORMATION ECONOMICS AND POLICY 1999, forthcoming.

[37] There have been serious estimates that the present asymmetrical restrictions on the incentives of RBOCs to offer new services have cost society billions of dollars annually in lost consumer benefits. See, for example, J.A. Hausman and T.J. Tardiff, *Benefits and Costs of Vertical Integration of Basic and Enhanced Telecommunications Services*, prepared for filing with the Federal Communications Commission, *Computer III Further Remand Proceedings*, CC Docket No. 95-20, on behalf of Bell Atlantic, Bell South, NYNEX, Pacific Bell, Southwestern Bell, and U S West, April 6, 1995.

process of innovation, the risk-taking investment in the new technologies—new methods of producing preexisting goods and services and the offering of new goods and services, thitherto unavailable.

45. As the renowned economist, Joseph A. Schumpeter, pointed out a half century ago, the "perennial gale of creative destruction" that lies at the heart of the capitalist economic process consists, at its essence, in a continuous process of creation and competitive erosion of monopoly, in which (as our patent laws likewise recognize) the prospect of exclusive enjoyment of the full fruits of successful innovation constitutes the essential incentive for innovators and imitators alike. Transient market dominance is an essential part of that dynamic process, which it is the purpose of the Act to release from regulatory constraints.

46. The more innovative the investments contemplated, the greater the uncertainties, both technological and commercial, the greater the risks, the more important is the prospect of the investor's exclusive enjoyment of the fruits of the ventures that turn out successfully. This proposition and the way in which the FCC's sharing rules conflict with it are most incisively spelled out by Justice Breyer, in the concurring portion of his separate opinion:

> [A] sharing requirement may diminish the original owner's incentive to keep up or to improve the property by depriving the owner of the fruits of the value-creating investment, research, or labor....Nor can one guarantee that firms will undertake the investment necessary to produce complex technological innovations, knowing that any competitive advantage deriving from those innovations will be dissipated by the sharing requirement.....Increased sharing by itself does not automatically mean increased competition. It is in the unshared, not in the shared, portions of the enterprise that meaningful competition would likely emerge. Rules that force firms to share every resource

> or element of a business would create, not competition, but pervasive regulation, for the regulators, not the marketplace, would set the relevant terms.[38]

47. Such is the case with high speed transmission services, which allow for rapid transmittal of data and high speed connections to the Internet.

48. So far as the obligation to share future facilities, created as a result of large and risky investments, are concerned, the issues were poignantly posed by the plans of AT&T, to which I have already alluded, for a multi-billion dollar upgrading of the cable of TCI, which it has just acquired, in order to provide local, Internet and advanced video services; by the mounting pressures on the FCC by competitors and public agencies to condition its approval of the merger on AT&T's giving competitors access to those facilities—presumably at FCC-determined rates—and by the equally costly and risky plans of the incumbent telephone companies to compete in these same markets by providing digitalization of subscriber access lines. AT&T strenuously resisted the proposals to impose such a condition upon it[39] and the FCC rejected them, presumably in the belief they would be incompatible with Schumpeterian competition and with Congress's deregulation of the cable companies in recognition of the need for encouraging their costly investment in upgrading their telecommunications capabilities. AT&T's economic experts have articulated the dangers of improper regulation of advanced services:

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[38] *AT&T Corp. v. Iowa Utilities Board*, 119 S. Ct. 721, 752 (1999) (Breyer, J. concurring in relevant part). See also, Robert W. Crandall, *The Telecom Act's Phone-y Deregulation* WALL ST. J., Jan. 27, 1999. ("Why should these firms invest in new, often risky technology for delivering advanced, high-speed services if they are to be required to offer any such new facilities to their rivals at cost"—moreover, "not the Company's actual cost," but "at prices that reflect *most efficient* technology?")

[39] *See* Bryan Gruley, *Must AT&T Give Internet Rivals Access To TCI's Network?* WALL ST. J., Jan. 15, 1999, at A1.